Guidelines and Principles

for

Social Impact Assessment

Prepared by

The Interorganizational Committee on Guidelines

and Principles for

Social Impact Assessment

December 14, 1993

P.O. Box 70
Belhaven, NC 27810

Members of the Committee

Rural Sociological Society	*Agricultural Economics Association*
- Rabel J. Burdge *University of Illinois*	- Larry Leistritz *North Dakota State University*
- Gary Williams *Argonne National Laboratory*	*International Association for Impact Assessment*
American Psychological Association	- C.P. Wolf *Social Impact Assessment Center*
- Lynn Llewellyn *U.S. Fish & Wildlife Service*	- James Thompson *University of Wyoming*
American Sociological Association	*Members-at-Large*
- Kurt Finsterbusch *University of Maryland*	- Peter Fricke *National Marine Fisheries Service*
- William R. Freudenburg *University of Wisconsin*	- Robert Gramling *University of S.W. Louisiana*
American Anthropological Association *Society for Applied Anthropology*	- John S. Petterson *Impact Assessment, Inc.*
- Richard Stoffle *University of Arizona*	- Arnold Holden *U.S. Forest Service*

Disclaimer: The materials published in this monograph do not in anyway reflect the views or the official position of the agencies, educational institutions and professional organization listed above.

Suggested Citation: Interorganizational Committee on Guidelines and Principles, 1993, *Guidelines and Principles for Social Impact Assessment*, % IAIA, Box 70, Belhaven, NC 27810 (40 pages).

Guidelines and Principles for Social Impact Assessment

by

The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment[(1)]

I. INTRODUCTION

Since passage of the National Environmental Policy Act (NEPA) of 1969, environmental impact assessment has become the key component of environmental planning and decision making in the United States. More recently, agency planners and decision makers have recognized a need for better understanding the social consequences of projects, programs and policies. In response to this need a group of social scientists formed the Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (SIA), with the purpose of outlining a set of guidelines and principles that will assist agencies and private interests in fulfilling their obligations under NEPA, related authorities and agency mandates. By "*social impacts*" we mean the consequences to human populations of any public or private actions--that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society. In this monograph, however, we define *social impact assessment* in terms of efforts to assess or estimate, in *advance*, the social consequences that are likely to follow from specific policy actions (including programs, and the adoption of new policies), and specific government actions (including buildings, large projects and leasing large tracts of land for resource extraction), particularly in the context of the *U.S. National Environmental Policy Act* or "NEPA" (P.L. 91-190, 42 U.S.C. 4371 *et seq.*).

The central requirement of NEPA is that, before any agency of the federal government may take "actions significantly affecting the quality of the human environment," that agency must first prepare an Environmental Impact Statement (or EIS). The preparation of EISs requires "integrated use" of the social sciences. The social science components of EISs are called social or socioeconomic impact assessments, or simply SIAs. Several federal agencies have moved to develop SIA guidelines, but most have not. Even within agencies that have SIA guidelines there is variation on how the social component of NEPA is to be implemented. Since the passage of NEPA there has *never* been a systematic, inter-disciplinary statement from the social science community as to what should be the content of an SIA, even though the term "*social impact assessment*" was first used when the Department of the Interior was preparing the EIS for the Trans-Alaska pipeline in the early 70s. The purpose of this monograph is to provide direction for the implementation of SIA guidelines within U.S. federal agencies.

The organizations and individuals listed on the cover sheet represent both the relevant social science disciplines and persons who have done SIAs both in federal agencies and the private sector, and those who have taught courses and conducted social impact assessment research through universities. This document is the first systematic and interdisciplinary statement to offer guidelines and principles to assist government agencies and private sector interests in using SIA to make better decisions under NEPA and related authorities (see Section II). These guidelines and standards are equally important for those communities and individuals likely to be affected by proposed actions in order that they might conduct independent assessments or evaluate the adequacy of SIAs. Within these few pages we cannot cover over two decades of research on "social effects", much less every contingency that may occur in the course of implementing a proposed project or policy change. However, we do provide a broad overview, focusing less on methodological details and more on the guidelines and principles for the preparation of technically and substantively adequate SIAs within reasonable time and resource constraints.

Section II of this monograph provides a brief overview of the legal mandates and the administrative procedures that shape SIAs done in the context of EISs; Section III provides a basic model for Social Impact Assessment; Section IV outlines the steps in doing an SIA and Section V provides principles and guidelines for doing social impact assessment. We conclude with a list of easy to obtain references.

II. LEGAL MANDATES AND ADMINISTRATIVE PROCEDURES FOR SOCIAL IMPACT ASSESSMENT

Prior to the enactment of the National Environmental Policy Act, concern about the social consequences of major projects often was fragmented and lacking in focus. For example, when construction-related impacts of public works projects were at issue, attention was generally centered on economic considerations. The prevailing view was that money could compensate for any adverse impacts. There was minimal concern for social impacts even if entire neighborhoods had to be displaced so long as comparable housing could be located elsewhere. There was even less concern for the distribution or "equity" of these impacts on different populations. Also, lost in this process was the importance people attach to their communities and neighborhoods; and particularly to long-standing social networks that form the basis of support both for daily living and during periods of extreme stress and hardship.

The passing of NEPA created a different, but somewhat vague set of requirements for federal agencies; among these the "integrated use" of the social sciences in assessing impacts "on the human environment." Over the years, the legal definition of "human environment" has undergone substantial modification as a result of court decisions stemming from NEPA-related litigation. The Council on Environmental Quality's 1986 *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* point-out that the "human environment" is to be "interpreted comprehensively" to include "the natural and physical environment and the relationship of people with that environment" (40 CFR 1508.14). Agencies need to assess not only so-called "direct" effects, but also "aesthetic, historic, cultural, economic, social, or health" impacts, "whether direct, indirect, or cumulative" (40 CFR 1508.8).

The 1986 CEQ Regulations also contain another key provision that should be noted... "economic or social effects are not intended by themselves to require preparation of an environmental impact statement." However, when such a statement is prepared "and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment" (40 CRF 1508.14). The EISs, thus are intended to provide a kind of full disclosure procedure for federal decision-makers, who are then expected to consider the negative as well as the positive implications of potential courses of action, and the unintended as well as the intended consequences, before they proceed. NEPA also provides citizens with the opportunity to challenge agency decisions in court; again in this case, however, NEPA's provisions are often misunderstood. The greatest level of legal vulnerability for the agency is created *not* by taking actions that will create negative impacts, but by failing to consider or possibly analyze those impacts in an EIS that treats them with full, good-faith consideration, in advance.

Figure 1 STATUTES AND REGULATIONS THAT MANDATE OR CONTAIN PROVISIONS FOR THE CONDUCT OF SOCIAL IMPACT ASSESSMENT

Date	Law	Provisions
1969	National Environmental Policy Act of 1969 amended in (NEPA, Soc. 101 [C] [A]).	Calls for the "Integrated Use" of the social sciences in assessing impacts "on the human environment". Also requires the identification of methods and procedures...which insure that presently unquantified environmental amenities and values be given appropriate consideration.
1976	Magnuson Fishery Conservation and Management Act, as amended (16 U.S.C.A. 1801, et seg.).	Where a "system for limiting access to the fishery in order to achieve optimum yield" is deemed necessary, the Act requires the Secretary of Commerce and the Regional Fishery Management Councils to consider in depth the economic and social impacts of the system.
1978	U.S. Council on Environmental Quality 1978:29. (40 C.F.R. 1500-1508). Regulations for implementing the procedural provision of the National Environmental Policy Act.	...the "human environment" is to be "interpreted comprehensively," to include "the natural and physical environment and the relationship of people with that environment."
1978	Outer Continental Shelf Lands Act, as amended (43 U.S.C. 1331 et seg.).	"The term 'human environment' means the physical, social, and economic components, conditions and factors which interactively determine the state, condition, and quality of living conditions, employment, and health of those affected directly or indirectly" by the resource development activities in question.
1980	Comprehensive Environmental Response, Compensation and Liability Act (26 and 43 U.S.C.A. et. seg.	Calls for working with affected publics through community relations programs and assessing community and state acceptance of Superfund plans affecting local populations.
1982	Nuclear Waste Policy Act	Calls for the preparation of an EIS, specifies demographic limitations on siting the nuclear repository; inclusion of affected Indian Tribes in the siting process and impact assistance.
1986	Superfund Amendments and Reauthorization Act.	Work with an affected public through community relations programs and assessing the acceptance of plans by local communities
1986	Council on Environmental Quality (40 CFR 1500-1508) re-issue of regulation implementing the procedural provision of the National Environmental Policy Act.	The human environment is defined and the cost-benefit provision is eliminated.

Most federal agencies are required to establish government-to-government relationships with American Indian tribes. The requirement is passed on to states, cities, and counties when federal funds are involved. The special status of American Indian tribes was clarified in the 1978 CEQ update. According to Section 555989, Indian Tribes are to have early knowledge of projects, are invited to

participate in the formulation of issues and in the research itself, and are invited to comment on drafts of reports before they become available during the "Public Comment Period." They have these rights, "...*whenever a project can impact Indian people living on a reservation*." In general, the CEQ update had been interpreted to mean that Indian concerns are included in an EIS whenever a project impacts any of their cultural resources whether these are found on or off current reservation lands. Since the CEQ updates, American Indian rights in the SIA process have been expanded by the American Indian Religious Freedom Act (92 Stat. 469 or PL 95-341) and the Native American Graves Protection and Repatriation Act which was passed on November 16, 1990. Although neither act was specifically designed to impact NEPA-SIA process, both acts have resulted in special sections in EIA's involving traditional Indian lands.

Figure 1 presents a brief chronology listing statutes and regulations that directly or indirectly mandate the conduct of social impact assessment. However, the NEPA requirements were the first and remain the ones having broadest applicability in the U.S., and thus the Committee's deliberations have focused on social impact assessment within that context.

III. A BASIC MODEL FOR SOCIAL IMPACT ASSESSMENT

EIA-SIA Link

Impacts on the human environment both resemble and differ from the bio-physical impacts. Social impacts can vary in *desirability*, ranging from the positive to the negative. They also vary in *scale*--the question of whether a facility will create 50 or 1000 jobs, for example, or will have the potential to spill 50 or 1000 gallons of toxic waste. Another consideration involves the *extent or duration* of impacts in time and space; some social impacts can be of short duration, while others can last a lifetime; and some communities "return to normal" quite quickly once a source of disruption is removed, while others do not. Social impacts can also vary in *intensity or severity*, a dimension that may be defined differently in different project settings, just as the same "objective" biophysical impact (e.g., a predicted loss of 75 sea otters) might have an almost imperceptible effect on populations in one location (e.g. off the coast of Alaska) while amounting to a significant fraction of the remaining population in another location (e.g. off the coast of California). Similarly, there are differences in the degree to which social impacts are likely to be *cumulative*, at one extreme, or mutually counterbalancing, at the other. In addition, it is important to consider the *social equity or distributions* of impacts on different populations (such as indigenous people), which are often just as important as the *levels*.

Just as the biological sections of EISs devote particular attention to species having special vulnerabilities, the socioeconomic sections of EISs must devote particular attention to the impacts on vulnerable segments of the human population. Examples include the poor, the elderly, adolescents, or unemployed women; members of minority and/or other groups that are racially, ethnically, and/or culturally distinctive; or occupational, cultural, political or value-based groups for whom a given community, region, or use of some component of the biophysical environment is particularly important.

In addition to the types of disturbances that can affect other species, humans are affected by changes in the distinctly human environment, including those associated with the phenomenon known as the *social construction of reality*. Persons not familiar with the social sciences are often tempted to treat social constructions as mere "perceptions or emotions," to be distinguished from "reality," but such a separation is not so easy to accomplish. We are careful to point out that the "social construction of reality" is characteristic of essentially all social groups, including the agencies that are attempting to

implement changes as well as the communities that are affected.

In the case of proposed actions that involve controversy--attitudes and perceptions toward a proposed policy change are one of the variables that must be considered in determining the "significance" of impacts (40 CFR 1508.27(4)). During controversies, participants are often tempted to dismiss the concerns of others as being merely imagined or "perceived," but there are two important factual reasons why such dismissals are not sufficient for omitting such concerns from SIAs and EISs--not even when one set of views is widely accepted within a federal agency, while another is associated primarily with the agency's critics. First, the positions taken by all sides in a given controversy are likely to be shaped by (differing) perceptions of the policy or project, and the decision to accept one set of perceptions while excluding another, may not be scientifically defensible. Second, when some participants assert that their critics are "emotional" or "misinformed," for example, they are guaranteed to raise the level of hostility between themselves and community members and likely stand in the way of a successful resolution of the problem.

In summary, some of the most important aspects of social impacts, involve not the physical relocation of human populations, but the meanings or *significance* of these changes.

A Social Impact Assessment Framework

In seeking to understand the behavior of individuals and communities affected by agency actions, we also seek to predict what the probable impact of development will be. We use a comparative SIA method most often, to study the course of events in a community where planned environmental change has occurred and to extrapolate from that analysis what is likely to happen in another community where a similar development or policy change is planned. Put another way, if we wish to know the probable effects of a proposed project in location (a), one of the best places to start is to assess the effects of a similar project that has already been completed in location (b). Specific variables to access project impacts are shown later in this section.

Based on the directives outlined in NEPA, we also need to identify irreversible and undesirable social effects of development before they occur in order that recommendations for mitigation may be made. As we point out in a later section, the appropriate federal agency in cooperation with the local community bear responsibility for coordinating mitigation efforts. The SIA model also allows us to address the issues of alternative plans and alternative impacts of a proposed project. Moreover, because social impacts can be measured and understood, recommendations for mitigating actions on the part of the agencies can be made. In section IV we outline a procedure for mitigation/enhancement.

It is almost impossible to catalogue all dimensions of social impacts because change has a way of creating other changes, much as the proverbial rock thrown in a pond -- rings are created, but in this case they become more complex as each ring is added. In Figure 3 we have identified the basic social dimensions that can be measured which reflect fundamental and important characteristics of a community. Studied over time, these characteristics give us insight as to how social structure will be altered when change occurs. Faced with a proposal to implement a new ski area, for example, the community and the agency proposing the change can profit from the experience of other communities that have already undergone development and thereby gain a reasonably accurate expectation of how the project will affect their community.

One way to capture the dynamic quality of something as far-reaching and complex as social impacts is to metaphorically take a series of snapshots over time as the development event or policy change unfolds

and fill in what happened in between. Ideally, information about the community or geographic area of study would be available both before and after the event to help in measurement. Social impacts then become the changes taking place between the two measurement points. The social assessor then attempts to forecast the change associated with proposed activity based on the research and information accumulated from comparative studies of similar impact situations. Forecasted impacts are the difference in the human environment between a future with the project and a future without the project. Since we cannot see the future, we look at similar communities that have experienced similar policies or projects in the past. Thus, the social impact assessment model is comparative in that after studying the social impacts of a development or policy change in one community, this community may be compared to the community where a similar type of activity is proposed. Our experience has shown that forecasts can then be made about probable social impacts. The model also permits a restudy of the impacted community in the future to assess what the actual impact has been, so that the fit between forecasts and outcome can be matched.

Another strength of the comparative SIA model is that with appropriate data sources (those which can be collected frequently such as land transfer records) it allows for a dynamic interpretation of events and can provide monitoring of short-term impacts. Moreover, this kind of frequent monitoring provides a continual source of evaluation or check on the direction of forecasts made about social impacts.

Stages in Project/Policy Development

All projects go through a series of steps or stages, starting with initial planning, then implementation and construction carrying through to operation and maintenance (Fig. 2). At some point the project might be abandoned or decommissioned, or official policy could change. The social impacts will be different for each stage. Scoping of issues prior to analysis may lead the assessor to focus only on one stage. For example, one community might be concerned about public reaction resulting from the initial siting of a hazardous waste disposal facility, another with the construction aspects of reservoirs, and a third might be faced with a change in the designation of adjacent public land from timber production to wilderness use. The specific stage in project development is an important factor in determining impacts, and not all social impacts will occur at each stage. Figure 2 illustrates the stages in project development.

1. Planning/policy development

Planning/policy development refers to all activity that takes place from the time a project or policy is conceived to the point of construction activity or policy implementation. Examples include project design, revision, public comment, licensing, the evaluating of alternatives, and the decision to go ahead. Social impacts actually begin the day the action is proposed and can be measured from that point.

Stage 1. Planning/policy development

Stage 2. Construction/implementation

Stage 3. Operation/maintenance

Stage 4. Decommissioning/abandonment

Figure 2, Stages in Project/Policy Development

Social assessors must recognize the importance of local or national "social constructions of reality" which begin during the earliest of the four stages--the planning/policy development stage. We often assume that no impacts will take place until Stage 2 (construction/implementation) begins on a project--through dirt-moving operations, for example, or the start-up of construction activities. However, real, measurable, and often significant impacts on the *human* environment can begin to take place as soon as there are changes in *social or economic* conditions. From the time of the earliest announcement of a pending policy change or rumor about a project, both hopes and hostilities can begin to mount; speculators can lock up potentially important properties, politicians can maneuver for position, and interest groups can form or redirect their energies. These changes occur by merely introducing new information into a community or region.

2. Construction/Implementation

The construction/implementation stage, begins when a decision is made to proceed, a permit is issued or a law or regulation takes place. For typical construction projects, this involves clearing land, building access roads, developing utilities, etc. Displacement and relocation of people, if necessary, occur during this phase. Depending on the scale of the project, the buildup of a migrant construction work force also may occur. If significant in-migration occurs, the new residents may create a strain on community infrastructure, as well as creating social stresses due to changing patterns of social interaction. Communities may have difficulties in responding to the increased demands on school, health facilities, housing and other social services. Further stresses may be created by resentments between newcomers and long-time residents, by sudden increases in the prices for housing and local service, and even by increased uncertainty about the future.

3. Operation/Maintenance

The operation/maintenance stage occurs after the construction is complete and/or the policy is fully operational. In many cases, this stage will require fewer workers than the construction/implementation phase; and particularly if operations continue at a relatively stable level for an extended period of time, the impacts during this stage can often be the most beneficial of those at any stage. Communities seeking industrial development will often focus on this stage, for example, because of the long term economic benefits that may follow from the development. It is also during this stage that the communities can adapt to new social and economic conditions, and accommodation can take place and the expectations of positive impacts such as stable population, a quality infrastructure and employment opportunities, be realized.

4. Abandonment/Decommissioning

Abandonment/decommissioning begins when the proposal is made that the project or policy and associated activity will cease at some time in the future. As in the planning stage, the social effects of decommissioning begin when the intent to close down is announced and the community or region must again adapt, but this time to the loss of the project or an adjustment to a policy change. Sometimes this means the loss of the economic base as a business closes its doors. At other times, the disruption to the local community may be lessened or at least altered if one type of worker is replaced by another, as in a case such as the Hanford Facility in Washington State, where production facilities have been closed down, but employment has actually increased as environmental cleanup specialists have been hired to

help deal with the extensive contamination at the facility. In other cases, disruption may be exacerbated if the community is not only losing its present economic base, but has lost the capacity to return to a former economic base. Morgan City, Louisiana which had been the self-proclaimed "shrimp capital of the world" in the 1950s is a good example of a community that lost its capacity to return to a former economic base. During the 60's and 70's the employment in this community shifted to offshore oil development. When oil prices collapsed in the 1980s, the community found it could not return to the shrimp industry because shrimp-processing facilities had closed down, and most of the shrimp boats had been allowed to decay or left the area.

The Project Type and Setting

The projects and policy decisions which require and benefit from social impact assessment range from prison and plant sightings to highway, reservoir, and power plant construction as well as managing old growth forests to maintain a biologically diverse region. Project types accordingly may range from isolated wilderness areas to urban neighborhoods, each with special characteristics that can effect social impacts. Social impacts (as well as economic and physical changes) will vary depending upon the type of development. The following examples of project types, settings, and policy changes are taken from the *Digest of Environmental Impact Statements*, published by The Information Resource Press.

- mineral extractions, including surface and underground mining as well as new oil and gas drilling;
- hazardous and sanitary waste sites, including the construction and operation of disposal sites for a variety of hazardous and sanitary wastes (Also included are facilities that burn or otherwise destroy chemical and toxic wastes);
- power plants include both nuclear and fossil fuel electrical generating facilities and associated developments;
- reservoirs, including all water impoundments for flood control, hydro power, conservation, recreation, and cooling lakes and diversion structures;
- industrial plants (manufacturing facilities built and operated by the private sector, e.g., refineries, steel mills, assembly lines);
- land use designations, e.g., from timber production to wilderness designation;
- military and governmental installations, including base closures and openings;
- schools; both public and private, primary, secondary and university;
- transportation facilities, including airports, streets, terminals;
- linear developments, including subways, railroads, power lines, aqueducts, bike paths, bridges, pipelines, sewers, fences, walls and barrier channels, green belts, waterways;
- trade facilities, including businesses, shopping centers;
- designation of sacred sites;

- parks and preserves, refuges, cemeteries, recreation areas;
- housing facilities, including apartments, office buildings, hospitals

Identifying the Social Impact Assessment Variables

SIA variables point to measurable change in human population, communities, and social relationships resulting from a development project or policy change. The research on local community change, rural industrialization, reservoir and highway development, natural resource development, and social change in general, we suggest a list of social variables under the general headings of (1) population characteristics, (2) community and institutional structures, (3) political and social resources, (4) individual and family changes, and (5) community resources.

Population characteristics mean present population and expected change; ethnic and racial diversity, influx and outflows of temporary residents as well as the arrival of seasonal or leisure residents.

Community and institutional structures mean the size, structure and level of organization of local government to include linkages to the larger political systems. The historical and present patterns of employment and industrial diversification. The size and level of activity of voluntary associations, religious organizations and interest group and finally, how these institutions relate to each other.

Figure 3: Matrix Relating Project Stage To Social Impact Assessment Variables[(2)]

Social Impact Assessment Variable	**Planning/ Policy Development**	**Implementation/ Construction**	**Operation/ Maintenance**	**Decommissioning/ Abandonment**
Population Characteristics				
- Population change				
- Ethnic and racial distribution				
- Relocated populations				
- Influx or outflows of temporary workers				
- Seasonal residents				
Community and Institutional Structures				
- Voluntary Associations				
- Interest Group Activity				
- Size and structure of local government				
- Historical experience with change				
- Employment/income characteristics				
- Employment equity of				

minority groups

- Local/regional/national linkages

- Industrial/commercial diversity

- Presence of planning and zoning activity

- *Political and Social Resources*

- Distribution of power and authority

- Identifications of stakeholders

- Interested and affected parties

- Leadership capability and characteristics

Individual and Family Changes

- Perceptions of risk, health, and safety

- Displacement/relocation concerns

- Trust in political and social institutions

- Residential stability

- Density of Acquaintanceship

- Attitudes toward policy/ project

- Family and friendship networks

- Concerns about social well-being

Community Resources

- Change in community infrastructure

- Native American tribes

- Land use patterns

- Effects on cultural, historical, and archaeological resources

Political and social resources refer to the distribution of power authority, the identification of interested and affected parties as well as the leadership capability and capacity within the community or region.

Individual and family changes refer to factors which influence the daily life of the individuals and families, including attitudes, perceptions, family characteristics and friendship networks. These changes range from attitudes toward the policy to an alteration in family and friendship networks to perceptions of risk, health, and safety.

Community resources include patterns of natural resource and land use; the availability of housing and community services to include health, police and fire protection and sanitation facilities. A key to the continuity and survival of human communities are their historical and archaeological cultural resources. Under this collection of variables we also consider possible changes for indigenous and religious sub-cultures.

At this point in the discussion of a SIA model we have demonstrated a conceptual procedure for both examining and accumulating information about social impacts. We have also outlined a matrix which demonstrates that social impacts will be different depending upon the project type and the stage of development. The next step in the development of the social impact assessment model is to suggest the social impact variables for stages in project development given different project types and settings.

Combining the Social Impact Assessment Variables, Project/Policy Stage and Setting

The four stages of project/policy development affect the social processes which produce changes in characteristics of the community or region. The SIA specialists must construct a matrix to direct their investigation of potentially significant social impacts. A sample, matrix is shown in Figures 3 and 4. For each project/policy stage, the assessor should identify potential impacts on each social variable identified in the matrix. This approach ensures that no critical areas are overlooked. Again we emphasize that Figure 3 does not represent *all* social impact assessment variables that may be of interest for any project, but is presented to illustrate the issues which represent the beginning of such a task. The task for the impact assessor is to spell out the magnitude and significance of impacts for each cell identified in the illustration.

Figure 4. Social Impact Assessment Variables, by Project/Policy Setting (type) and Stage

Project/Policy Stage				
Project/Policy Settings (type)	Planning/Policy Development	Construction/ Implementation	Operation/ Maintenance	Decommission/ Abandonment
Hazardous Waste Site	Perceptions of risk, health and safety	Influx of temporary workers	Trust in political social institutions	Alteration in size of local government
Industrial Plant	Formation of attitudes toward the project	Change in community Infrastructure	Change in employment/ income characteristics	Change in employment equity of minority groups
Forest Service to Park Service Management	Interested and affected parties	Trust in political and social institutions	Influx of recreation users	Distribution of power authority

Figure 4 provides an abbreviated illustration of how the SIA variables (as suggested in Figure 3) might be applied within the context of both the setting type and the stage of a project. The first example is the siting of a hazardous waste facility. Perceptions about problems of public health and safety could emerge during the early planning stage. If the decision is made to go ahead, construction would be accompanied by an influx of temporary workers. In the case of the industrial plant, community infrastructure support might be needed during construction, while changes in the industrial focus of the community might occur during the operational stage. These analytic procedures would be repeated for each of the SIA variables for each stage of the project. The procedures for accomplishing this task are outlined in Section V on principles for doing social impact assessment.

IV. STEPS IN THE SOCIAL IMPACT ASSESSMENT PROCESS

The social impact assessment itself should contain the ten steps outlined in Figure 5. These steps are logically sequential, but often overlap in practice. This sequence is patterned after the EIA steps as listed in the CEQ guidelines.

1. *(Public Involvement*) Develop a legitimate public involvement plan to involve the public (and all potentially affected groups) in the SIA process.

This requires identifying and working with all potentially affected groups starting at the very beginning of planning for the proposed action. Groups affected by proposed actions include those who live nearby; those who will hear, smell or see a development; those who are forced to relocate because of a project; and those who have interest in a new project or policy change but may not live in proximity. Others affected include those who might normally use the land on which the project is located (such as farmers who have to plow around a transmission line). Still others include those affected by the influx of seasonal residents who may have to pay higher prices for food or rent, or pay higher taxes to cover the cost of expanded community services. Once identified, representatives from each group should be systematically interviewed to determine potential areas of concern/impact and how each might be involved in the planning decision process. Public meetings are inadequate for collecting information about public perceptions. Survey data can be used to define the potentially effected population. In this first step, the pieces are put in place for a public involvement program which will last throughout the EIA/SIA process.

2. *(Identification*) Describe the proposed action or policy change and reasonable alternatives if appropriate.

In the next step, the proposed action is described in enough detail to begin to identify the data requirements needed from the project proponent to frame the SIA. At a minimum, the project proponent should provide the following information: location, land requirements, need for ancillary facilities (roads, transmission lines, sewer and water lines), construction schedule, size of the work force (construction and operation, by year or month), facility size/shape, need for local work force and institutional resources. The list of social impact assessment variables shown in Figure 3 is a guide for obtaining data from policy or project proponents. Sometimes the description of the proposed alternatives may not include all the information needed for an SIA. Another problem is the provision of summary numbers when dis-aggregated numbers are needed. For example, the social assessor may be given numbers for the total peak work force of a construction project, when information is needed on local, immigrating, and non-local commuting workers for each phase of construction.

3. *(Baseline Conditions*) Describe the relevant human environment/area of influence and baseline conditions.

The baseline conditions are the existing conditions and past trends associated with the human environment in which the proposed activity is to take place. This is called the baseline study. For construction projects, a geographical area is identified along with the distribution of special populations at risk; but for programs, policies, or technology assessments, the relevant human environment may be a more dispersed collection of interested and affected parties, pressure groups, organizations, and institutions. The generic set of dimensions for investigation listed below would include the following aspects of the human environment for construction projects and geographically located programs and policies (the social impact assessment variables listed in Figure 3 require similar information):

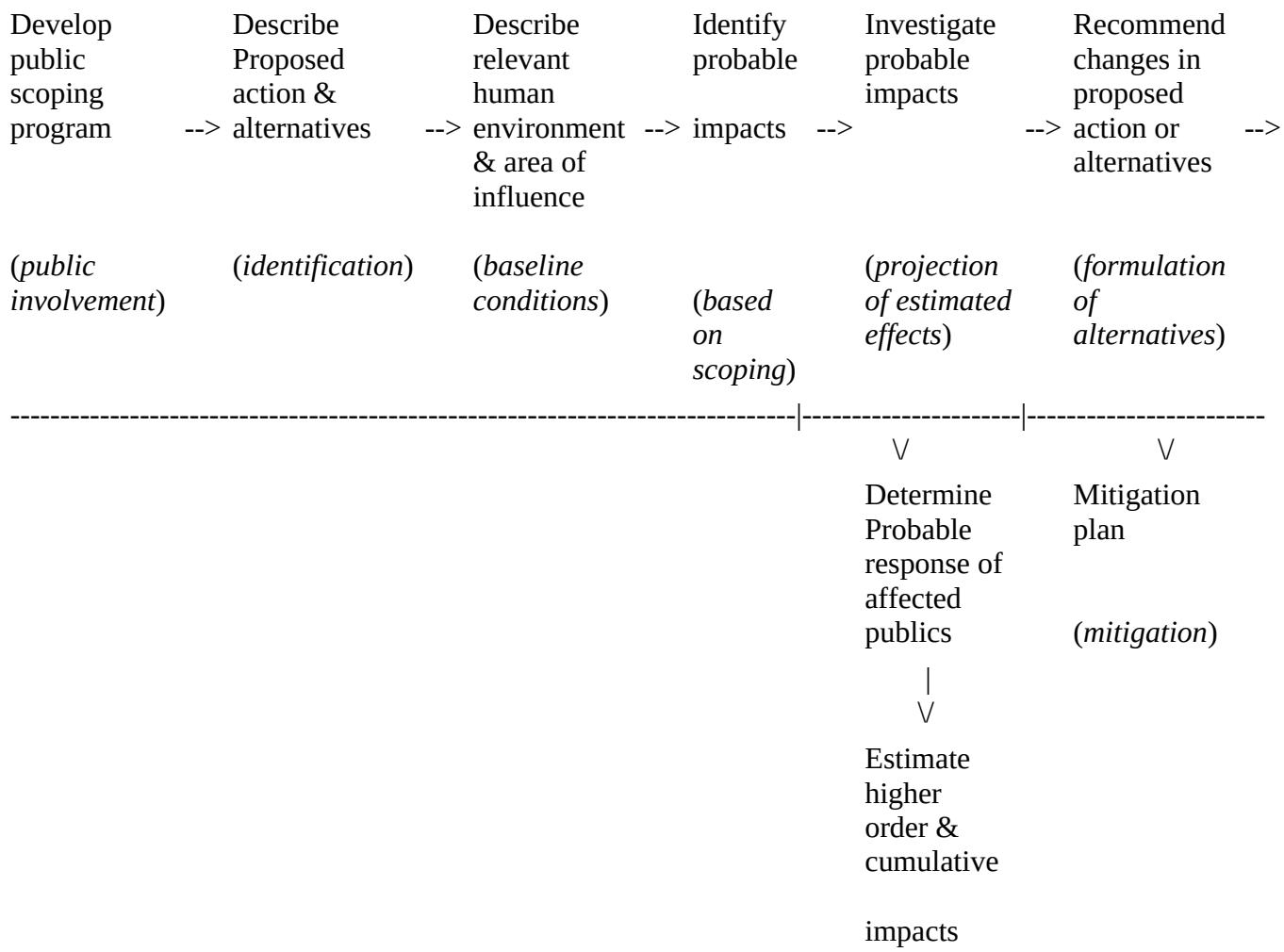
A. Relationships with the biophysical environment, including ecological setting; aspects of the environment seen as resources/problems; areas having economic, recreational, esthetics and/or symbolic significance to specific indigenous categories; residential arrangements and living patterns, including relationships among communities/social organizations; attitudes toward environmental features; and patterns of resource use.

B. Historical background, including initial settlement and subsequent shifts in population; developmental events and eras, including experience with boom-bust effects as well as a discussion of broader employment trends; past or ongoing community controversies, particularly involving technology and/or the environment; and other experiences likely to affect the level or distribution of the impacts of and/or local receptivity to the proposed action.

C. Political and social resources, including the distribution of power and authority; the capacities of relevant systems or institutions (e.g., the school system); friendship networks and patterns of cleavage or cooperation among potentially affected groups; levels of residential stability; distributions of socio-demographic characteristics such as age and ethnicity; presence of distinctive or potentially vulnerable groups (e.g., low income); and linkages among geo-political units (federal, state, county, local and inter-local).

Figure 5

Steps in the Social Impact Assessment Process



<.....Include Interested and Affected Publics in all Steps of the Social Impac

Assessment Process.....>

D. Culture, attitudes and social-psychological conditions, including attitudes toward the proposed action; trust in political and social institutions, perceptions of risks; relevant psychological coping and adjustment capacity; cultural cognition of society and environment; assessed quality of life; and important values that may be relevant to or affected by the proposed action.

E. Population characteristics including the demographics of relevant groups (including all significant stakeholders and sensitive populations and groups); major economic activities; future prospects; the labor markets and available manpower; unemployment and underemployment; population and expected changes; availability of housing, infrastructure and services; size and age structure of households; and seasonal migration patterns.

The level of effort that is devoted to the description of the human environment should be commensurate with the size, cost and degree of expected impacts of the proposed action. At a minimum,

the existing literature on comparable or analogous impact events, and informants and readily available documents such as government reports should be consulted. On site investigations and the use of previous field studies and surveys are recommended, as well as rapid appraisals and mini-surveys.

4. (*Scoping*) After obtaining a technical understanding of the proposal, identify the full range of probable social impacts that will be addressed based on discussion/interviews with all potentially affected publics.

After initial scoping, the social impact assessor selects the SIA variables for further assessment situations. Consideration needs to be devoted both to the impacts perceived by the federal agency and to those perceived by affected publics. The principal methods to be used by disciplinary experts and interdisciplinary teams are reviews of the existing social science literature, public scoping, public surveys and public participation techniques. It is important for the views of affected publics to be taken into consideration. Ideally, all affected publics contribute to the selection of variables for assessment through a participatory process or by review and comment on the selections by responsible officials and the interdisciplinary SIA-EIA team.

Relevant criteria for selecting "significant" impacts comparable to those spelled out in the CEQ Regulations (40 CFR 1508.27), include:

- The probability of the event occurring
- Number of people and/or indigenous populations that will be affected.
- Duration of impact (long term vs. short term)
- Value of benefits and/or costs to impacted groups (intensity of impacts)
- Extent impact is reversible or can be mitigated
- Likelihood of causing higher-order impacts
- The relevance for present as well as future policy decisions
- Uncertainty over possible effects
- The presence or absence of controversy over the issue

5. *(Projection of Estimated Effects*) Investigate the probable impacts.

The probable social impacts will be formulated in terms of predicted conditions without the actions (baseline projection), the predicted conditions with the actions and the predicted impacts which can be interpreted as the differences between the future with and without the proposed action. The empirical procedure is based on the social impact assessment model outlined in Section III. Investigation of the probable impacts involves five major sources of information: (1) data from project proponents; (2) the record of previous experience with similar actions as represented in reference literature as well as other EIA-SIA's; (3) census and vital statistics; (4) documents and secondary sources; and (5) field research, including informant interviews, hearings, group meetings and surveys of the general population. The investigation of the social impacts identified during scoping is the most important component.

Methods of projecting the future lie at the heart of social assessment, and much of the process on analysis is tied up in this endeavor. In spite of the long lists of methods available, most fall into the following categories:

- *comparative method*

- *straight-line trend projects* (taking an existing trend and simply projecting the same rate of change into the future),

- *population multiplier methods* (each specified increase in population implies designated multiples of some other variable, e.g. jobs, housing units),

- *scenarios*: 1) logical-imaginations based on construction of hypothetical futures through a process of mentally modelling the assumptions about the variables in question; and 2) fitted empirical, where similar past cases are used to analyze the present case with experts adjusting the scenario by taking into account the unique characteristics of the present case.

- *expert testimony* (experts can be asked to present scenarios and assess their implications);

- *computer modelling* (involving the mathematical formulation of premises and a process of quantitative weighing of variables); and

- *calculation of "futures foregone"* (a number of methods have been formulated to determine what options would be given up irrevocably as a result of a plan or project, e.g., river recreation and agricultural land use after the building of a dam).

The record of previous experience is very important to the estimation of future impacts. It is largely contained in case reports and studies and the experience of experts. Variations in the patterns of impacts and responses in these cases also should be registered. Expert knowledge is used to enlarge this knowledge base and to judge how the study case is likely to deviate from the typical patterns. The documents and secondary sources provide information on existing conditions, plans, reported attitudes and opinions; and contribute to the case record. The field research involves interviews with persons who have different interests at stake, different perspectives, and different kinds of expertise. Wherever feasible, it should also involve a search through a wide range of documentation that is often available, in forms that range from official statistics to the minutes of organizations to the patterns of coverage and of letters to the editors. The opinions of the various publics toward the proposed change should also be part of the record. Surveys are valuable to assess public opinion properly, because spokespersons for groups do not always represent the views of the rank and file. Public meetings should not be used to collect data for projections.

6. *(Projecting Responses to Impacts*) Determine the significance of the identified social impacts.

This is a very difficult assessment task and often avoided, but the responses of affected parties frequently will have significant higher-order impacts. After the direct impacts have been estimated the assessor must next estimate how the affected publics will respond in attitude and actions. Their attitudes before implementation predicts their attitudes afterwards. Though there is increasing data that show fears are often overblown and that expected (often promised) benefits fail to meet expectations. This literature should be consulted. The actions of affected publics are to be estimated using comparable cases and interviews with affected publics about what they expect to do. So much depends on whether local leadership arises and the objectives and strategies of these leaders, that this assessment step often is highly uncertain, but at least policy makers will be notified of potential problems and unexpected results.

This step is also important because adaption and responses of affected publics can have consequences of their own--whether for an agency that proposes an action (as when political protest stalls a proposal)

or for the affected communities, whether in the short term or in the longer term (as in the previously noted example of Morgan City, Louisiana). The patterns in previous assessments guide this analysis, and expert judgment and field investigations are used to see whether the study case is following the typical patterns or how it is developing uniquely. Being able to show potentially affected publics that significant impacts are being incorporated into the assessment is critical to the success of this step.

7. *(Higher Order and Cumulative Impacts*) Estimate higher-order impacts and cumulative impacts.

Higher-order impacts are the consequences of the immediate or lower-order impacts. Cumulative impacts are relatively small impacts which continue over a long time and ultimately have considerable consequences. These impacts include the project/policy impacts and responses predicted plus impacts of future developments likely to occur over the same time period. Our procedures suggest that it is more important to devote effort to the identification of higher order and cumulative impacts, rather than to measure them.

8. *(Formulation of Alternatives*) Recommend alternatives or changes in the proposed action and estimate/project the consequences of the proposed modifications.

Each alternative or change should be assessed separately. The methods used in step five, on estimation, apply here but usually on a more modest scale. More innovative alternatives and changes probably should be exposed on an experimental basis. Expert judgment and scenarios are helpful in developing project and policy alternations. The number of iterations will depend upon time, funding and the magnitude of the project/policy changes.

9. *(Mitigation*) Develop a Mitigation Plan.

As indicated in the CEQ Guidelines (40 CFR 1508.20), it is important for an impact assessment not only to forecast impacts, but to take all practical steps to mitigate any significant negative impacts that are so identified. "Mitigation" in the NEPA context includes the *avoidance* of impacts where possible, the *minimization/rectification* of any negative impacts that cannot be avoided, and the provision of appropriate *compensation* for impacts that can neither be avoided nor minimized successfully. (Federal legislation which mandates mitigation measures is shown in Figure 6). We suggest a sequencing strategy to manage social impacts modeled after one used with wetland protection and other natural resource issues. During the first sequence, the wetlands managers strive to avoid all adverse impacts. In the second sequence, managers strive to minimize any adverse impacts that cannot be avoided and during the third sequence, managers compensate for adverse impacts. Compensation for the loss of a wetland, for example, could be to acquire a different wetland, enhance a degraded site, or create a new wetland. The amount of compensation can be based on the type of wetland or resource lost, the severity of the impact, and location of the wetland mitigation site.

The first two steps of sequencing -- avoiding and minimizing -- can apply to the project itself or to the host community or the impacted region. For example, the project may be revised to avoid or minimize adverse social impacts (e.g., extend the construction period to minimize in-migration), or the community may be able to take steps to attenuate, if not avoid, any adverse effects. Application of the sequencing concept for the mitigation of adverse social impacts requires that the assessor first rank the level of importance of each significant SIA variable determined during the estimated effects step.

The first step in evaluating potential mitigation for each social impact variable is to determine whether the proponent could modify the project or proposed policy to avoid the adverse effects. For example, a

road that displaces families could be re-routed. The next step in the sequencing process is to identify ways to minimize adverse social impacts. For example, most citizens are uncomfortable with the idea of locating a perceived undesirable facility near their community. Attitudes (particularly negative ones) formed about the project, cannot be eliminated, but might be moderated if the public has complete information about the proposed development and are included in the decision making process or are provided with structural arrangements that assure safe operations. There are at least three benefits of identifying unresolvable social impacts that may result from a proposed project are identified. The first is identifying methods of compensating individuals and the community for unavoidable impacts. The second occurs when the community may identify ways of enhancing other quality of life variables as compensation for the adverse effects. The third happens when the identification of the unresolvable social impacts, that may occur from a proposed development, makes community leaders and project proponents more sensitive to the feelings of community residents. By articulating the impacts that will occur and making efforts to avoid or minimize the adverse consequences, or compensating the residents or the community for the losses, the benefits may be enhanced. It is not the function of the SIA to reduce conflict!

10. *(Monitoring*) Develop a monitoring program

A monitoring program should be developed that is capable of identifying deviations from the proposed action or unanticipated impacts, and a system to deal with adverse impacts as they have been identified. A monitoring plan should be developed to track project/program development and compare real impacts with projected impacts, and should spell out to the degree possible the nature and extent of additional steps that should take place when unanticipated impacts or impacts larger than the projections occur. Monitoring programs are necessary for projects and programs that lack detailed information or that have high variability or uncertainty. It is important to recognize, in advance, the potential for "surprises" that may lie completely outside the range of options considered by the SIA. If monitoring procedures cannot be adequately implemented then mitigation agreements should work to the benefit of all parties involved in a decision-making process and should allow a project to move forward. It is generally only at this stage that the community or affected group has the influence to "get it in writing." A recent example of a monitoring program with subsequent provision for mitigation was negotiated between the U.S. Department of Energy, the State of Texas and the Super Conducting Super Collator Laboratory (SSC, 1988). The process allowed for the payment of approximately $800,000 to local jurisdictions (SSC, 1992) to monitor the impacts of the construction activity.

Figure 6
UNITED STATES FEDERAL LEGISLATION AND EXECUTIVE ORDERS ADDRESSING RESOURCE DEVELOPMENT AND SOCIOECONOMIC MITIGATION

Date	Federal Law	Socioeconomic Mitigation
1920	Mineral Leasing Act (41 Stat 449)	Allowed 37.5% of receipts to be returned to local governments for schools and roads; required protection of subsistence habitats.
	Coastal Energy Impact Program	Places Federal government in a secondary role behind State and local governments.
1969	National Environmental Policy Act	Required human and community conditions to be considered in the assessment process.
1975	Federal Coal Leasing Amendments Act	Increased percent of revenues for socioeconomic mitigation.
1976	Federal Land Policy Management Act	Required revenues received by States to go to impacted areas.
1976	Mineral Leasing Act Amendments	Increased the amount of receipts to 50% and broadened categories of receipts that could be spent on courts, sewers, infrastructure, etc.
1978	Power Plant and Industrial Fuel Use Act	Federal government can pay for planning and land acquisition for housing and community facilities in coal/uranium development.
1978	Defense Economic adjustment programs Executive Order	Establishes economic adjustment committee and encourages uniform economic impact analysis and information sharing.
1981	Military Construction and Authorization Act	Allows up to $1 million of Federal funds per county for impacts.

V. PRINCIPLES FOR SOCIAL IMPACT ASSESSMENT

In general, as should by now be clear, there is consensus on the types of impacts that need to be considered (generally including social, cultural, demographic, economic, social-psychological, and often political impacts, as already discussed); on the need for the SIA to include a discussion of the proposed action (i.e., the proposed facility, project, development, policy change, etc.); on the components of the human environment where the impacts are likely to be felt (generally involving affected neighborhoods, communities or regions); on the likely impacts (generally defined as the difference between the likely future of the affected human environment *with* versus *without* the proposed policy or project); and on the steps that could be taken to enhance positive impacts and to "mitigate" any negative ones (by avoiding them, if possible, by modification and minimization, and providing compensation for any negative impacts that cannot be avoided or ameliorated). As SIA textbooks point out (Burdge, 1994; Branch, *et.al.*, 1984; Finsterbusch, 1980; Freudenburg, 1986; Taylor, *et.al.*, 1990) and as suggested by the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (U.S. Council on Environmental Quality, 1986), the SIA practitioner should focus on the more significant impacts, should use appropriate measures and information, should provide quantification where feasible and appropriate, and should present the social impacts in a manner that can be understood by decision-makers and community leaders.

The following principles augment the guidance provided in earlier sections. These principals are benchmarks for conducting an SIA. They include: (1) the ***joint role*** of SIA and public involvement in

identifying affected groups; (2) the concept of ***impact equity*** (who "wins" and who "loses") as it concerns sensitive groups; (3) the ***focus of an SIA*** -- issues identified by the affected public as possible impacts, those relevant to management decisions (significant impacts), and impacts identified through social science expertise; (4) ***explicit identification of methods***, **assumptions** and determination of **significance**; (5) ***feedback*** to project planners; (6) ***use of social scientists*** to do SIA; (7) ***establish mitigation and monitoring*** as a joint agency-community responsibility; (8) ***identifying appropriate data source*** for SIA and (9) ***planning*** for gaps in data.

1. ***(Involve the diverse public*****) Identify and involve all potentially affected groups and individuals**.

A public involvement/conflict management program can beneficially be a part of and closely integrated with the development of the social impact assessment process. A lack of understanding still exists among many decision makers as to how public involvement fits within the planning process. Public involvement (PI) complements and fits within the SIA process by identifying potentially impacted (affected) groups, and by interpreting the "meaning" of impacts for each group if SIA and PI are coordinated throughout the social assessment. Public involvement plays an important role in recruiting participants for the planning process who are truly representative of affected groups. Public involvement should be truly interactive, i.e., communication flowing both ways between the agency and affected groups.

2. *(Analyze impact equity***): Clearly identify who will win and who will lose and emphasize vulnerability of under-represented groups.**[(3)]

Impacts should be specified for differentially affected groups and not just measured in the aggregate. Identification of all groups likely to be affected by an agency action is central to the concept of impact equity. There will always be "winners" and "losers" as the result of a decision to construct a dam, build a highway or close an area to timber harvesting. However, no category of persons, particularly those that might be considered more sensitive or vulnerable as a result of age, gender, ethnicity, race, occupation or other factors, should have to bear the brunt of adverse social impacts. SIA is not a zero-sum game. The impact assessment practitioner must be attentive to those groups that lack political efficacy; such "low-powered" groups often are not heard, do not have their interests properly represented, and may fall through the SIA safety net.

Examples abound in the literature of groups that could be considered sensitive, vulnerable and/or low-powered. The elderly have been identified as a category of persons sensitive to involuntary displacement and relocation. Children have suffered learning problems resulting from long-term exposure to various forms of transportation noise (e.g., vehicular traffic, rapid rail). Minorities and the poor are disproportionately represented in low-powered groups; low-income, minority neighborhoods frequently were targeted in the 1960's as optimal sites for road construction and similar public works projects. Persons with some form of disability or impairment constitute another sensitive category with important needs. Farmers often are affected by transmission lines, water projects or developments that take large amounts of land. The special impacts to those persons should be highlighted in an SIA, not lost in summary statistics.

3. *(Focus the assessment***): Deal with issues and public concerns that "really count," not those that are "easy to count."**

a. Impacts Identified by the Public. SIA practitioners must contend with stringent time and resource constraints that affect the scope of the assessment and how much can be done in the time available.

Given such constraints, a central question emerges: "If you cannot cover the social universe, what should you focus on?" The answer is to focus on the most significant impacts in order of priority, and all significant impacts for all impacted groups must be identified early using a variety of rapid appraisal or investigative techniques. Clearly, impacts identified as important by the public must be given high priority. Many of these impacts will surface during the NEPA scoping process or earlier if a survey is used to identify the potentially affected populations; however, as noted earlier, some low-powered groups that may be adversely affected do not necessarily participate in early project stages. It is essential that broadly-based public involvement occur throughout the life of the SIA; but additional means (e.g., key informants, participant observation and where possible, attitude surveys) often must be used to ensure that the most significant public concerns are addressed.

b. Impacts Identified by SIA Practitioners SIA practitioners have the expertise to help prioritized impact issues though a review of the SIA literature and from professional experience. Often they will suggest the study of issues unrecognized by either the public or the agencies.

4. ***(Identify methods and assumptions and define significance in advance****): Define how the SIA was conducted, what assumptions were used and how significant impacts were selected.*

The methods and assumptions used in the SIA should be made available and published prior to decision making in order to allow decision makers as well as affected publics to assess the confidence levels of specific impact estimates (a process required by NEPA). Those impacts identified by the federal agency often correlate highly with issues identified by the public. Practitioners will need to consult the CEQ Regulations for Implementing The Procedural Provisions of NEPA contained in 40 CFR 1500 et. seq. Section 1508.8 provides a general overview of "effects" (both direct and indirect), a term used synonymously with impacts, and presents a selective list of impact examples. The CEQ regulations make clear that an EIS does not have to cover all impacts, only those considered "significant." Section 1508.27 defines significance in terms of "context" and "intensity" considerations. Context includes such considerations as society as a whole, affected regions, affected interests and locality (e.g., when considering site-specific projects, local impacts assume greater importance than those of a regional nature). Intensity refers to the dimensions presented under "Scoping" on page 19 as well as consideration of health and safety, endangered species or unique human resources, precedents and laws. While these criteria are helpful in judging significance, the SIA practitioner also needs to consult individual agency step-down procedures for NEPA compliance -- some of which list additional social impacts that the agency must consider.

FIGURE 7

Principles for Social Impact Assessment

*** Involve the diverse public**

Identify and involve all potentially affected groups and individuals

*** Analyze impact equity**

Clearly identify who will win and who will lose and emphasize vulnerability of under-represented groups

*** Focus the assessment**

Deal with issues and public concerns that "really count," not those that are "easy to count"

*** Identify methods and assumptions and define significance in advance**

Define how the SIA was conducted, what assumptions were used and how significance were selected

*** Provide feedback on social impacts to project planners**

Identify problems that could be solved with changes to the proposed action or alternatives

*** Use SIA practitioners**

Trained social scientists employing social science methods will provide the best results

*** Establish monitoring and mitigation programs**

Manage uncertainty by monitoring and mitigating adverse impacts

*** Identify data sources**

Use published scientific literature, secondary data and primary data from the affected area

*** Plan for gaps in data**

5. *(Provide feedback on social impacts to project planners*): Identify problems that could be solved with changes to the proposed action or alternatives.

Findings from the SIA should feed back into project design to minimize negative impacts and enhance positive impacts. The impact assessment, therefore, should be designed as a dynamic process involving cycles of project design, assessment, redesign, and reassessment. Unfortunately this process is often carried out informally with project designers prior to publication of the assessment for public comment.

6. *(Use SIA Practitioners*): Trained social scientists employing social science methods will provide the best results.

The need for professionally qualified, competent people with a social science background cannot be overemphasized. An experienced SIA practitioner will "know the data," and be familiar and conversant with existing social science evidence pertaining to impacts that have occurred elsewhere, which may be

relevant to the impact area in question. This breadth of knowledge and experience can prove invaluable in identifying important impacts that may not surface as public concerns or as mandatory considerations found in agency NEPA compliance procedures. The social scientist will be able to identify the full range of important impacts and then will be able to select the appropriate measurement procedures. Having a social scientist as part of the EIS team will also reduce the probability that an important social impact could go unrecognized. In statistical terms, this is analogous to focusing as much effort on Type II errors -- predicting on impact that is not present the probability of overlooking an effect that is in fact present -- as Type I errors (predicting an impact that is not present). In assessing social impacts, if the evidence on a potential type of impact is not definitive in either direction, then the appropriate conservative conclusion is that the impact *cannot be ruled out with confidence*. In addition, it is important that the SIA practitioner be conversant with the technical and biological perspectives brought to bear on the project as well as the cultural context of the Federal Agency in which they work.

7. *(Establish monitoring and mitigation program*): Manage uncertainty by monitoring and mitigating adverse impacts.

Crucial to the SIA process is the monitoring of significant social impact variables and the programs which have been put into place to mitigate them. As indicated earlier, the identification of impacts might depend on the specification of contingencies; e.g., if the in- migration of workers during the construction phase work force is 1000, then the impact on the housing market will be x, but if it is only 500, then the impact will be y. Identifying and monitoring infrastructure needs is a key element of the local planning process. Two key points: (1) monitoring and mitigation should be a joint agency-community responsibility; and (2) both activities should occur on an iterative basis throughout the project life cycle. Depending on the nature of the project and time horizons for completion, the locus of long-term responsibility for monitoring and mitigation is not easily defined. Research shows that trust and expertise are key factors in choosing the balance between agency and community monitoring participation. Few agencies have the resources to continue these activities for an extended period, but local communities should be provided resources to assume a portion of the monitoring and mitigation responsibilities.

8. *(Identify Data Sources)*: Published scientific literature, secondary data and primary data from the affected area.

hese three sources should be consulted for all SIA's. Balance among the three may vary according to the type of the proposed action, as well as specific considerations noted below, but all three will be relevant.

a. Published Scientific Literature If possible, the SIA should draw on existing, previously reviewed and screened social science literature which summarizes existing knowledge of impacts based on accepted scientific standards. Examples include journals, books and documents available from similar projects. An easy to obtain list of recommended sources is provided at the end of this monograph. Existing documentation is useful in identifying which social impacts are likely to accompany the proposed action. When it is possible to draw potentially competing interpretations from the existing literature, the SIA should provide a careful discussion of relative methodological merits of available studies.

As pointed out in section III the best guidance for future expectations is past experience; therefore, consideration of existing literature should err on the side of inclusiveness, not on exclusion of potentially relevant cases. Caution is needed when the SIA presents a conclusion that is contradicted by the

published literature; in such cases, the reasons for the differences should be explicitly addressed. Anthropological data on rural and ethnically and racially diverse communities is best for understanding the "cultural context" of the impacted community.

b. Secondary Data Sources. The best known secondary sources of these are the Census, vital statistics, geographical data, and routine data collected by State and Federal Agencies. Examples of other "secondary" data sources include agency caseload statistics (e.g., from mental health centers, social service agencies and other human service providers, law enforcement agencies, and insurance and financial regulatory agencies); published and unpublished historical materials (often available in local libraries, historical societies, and school district files); compilations produced by booster and/or service organizations (such as chambers of commerce, "welcome wagon" organizations, and church groups); and the files of local newspapers. These secondary sources can be used in conjunction with key-informant interviews, allowing for verification of informant memories and of potential sources of bias in the available documentary record.

c. Primary Data from the Affected Area. Survey research, oral histories and informant interviews are examples of primary data which may be collected to verify other data sources. If a social assessor concludes that community impacts will differ from those documented elsewhere such conclusions must be based on the collection and analysis of primary data which specifically show why such alternative conclusions are more credible. Also, local residents often have important forms of expertise, both about local socioeconomic conditions and about the broader range of likely impacts. Each community may react to a development event or policy change in a unique way.

9. ***Planning for Gaps in Data***

SIA practitioners often have to produce an assessment in the absence of relevant or even necessary data. This principle is intended to supplement the guidance already provided by the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (U.S. Council on Environmental Quality, 1978, 40 CFR 1502.22, as amended by the removal of the requirement for a "worse-case analysis" [Federal Register 51, No. 80, Friday, April 25, 1986, pp. 15818-626]: When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information...is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

Only if the relevant information "cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known," according to the regulations, is the EIS permitted a gap in relevant information. In such cases, moreover, the EIS needs to include: (1) a statement of relevance of the incomplete or unavailable information...(2) a summary of existing credible scientific evidence [that] is relevant..., and (3) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community (40 CFR 1502.22 [B]).

The following three principles are acceptable procedures to the social science community when there are shortages of resources necessary to do the desired data collection.

a. It is more important to identify likely social impacts than to precisely quantify the more obvious

social impacts.

All assessors strive to identify and quantify significant impacts, thereby providing decision makers and the affected publics with information that is both as complete and as accurate as possible. In cases where this desirable goal cannot be met, *it is better to be roughly correct on important issues than to be precisely correct on unimportant issues*.

Within the context of the social impact statement, there are two important differences between impact identification (what are the general categories or types of impacts that are likely to occur [see Figure 3]) and impact quantification (precisely how "significant" are those impacts likely to be?). A long history of research has identified the social impacts of many types of actions, so the experienced social scientist is capable of identifying plausible and potentially significant impacts relatively quickly and efficiently. On the other hand, precise quantification is a resource-intensive process and deals with the question of significance. Secondly, research on the decision making process has found that judgments of self-defined experts and policy makers are particularly prone toward premature closure. Given a partial listing of potential impacts -- even expert judges tend to assume they have been given a complete list and in most cases, fail to recognize the potential impacts that have been omitted from consideration. While empirical estimates can appear to be quite precise, demographic/economic projections have been shown by empirical analysis to have an average absolute error in the range of 50-100%. We support the use of qualitative and quantitative measures of social impact assessment variables, but realize that significance has a judgment component.

b. It is important to be on the "conservative" side in reporting likely social impacts.

The purpose of the EIS is to provide an even-handed treatment of the potential for impacts, offering a scientifically reasonable assessment of the potential for impacts in advance of the development event. Moreover, it is a very different matter from providing solid proof of impacts after all the evidence is in! All EISs are by their nature anticipatory. Questions about the "proof" of impacts are often capable of being asked in an apparently scientific language, but incapable of being answered with true confidence in advance of the actions in question. In assessing social and economic impacts, accordingly, if the evidence for a potential type of impact is not definitive in either direction, the "conservative" conclusion is that the impact cannot be ruled out with confidence, and not that the impact "is not proven." In cases of doubt, in short, the proper interpretation is the Type II test for power/sensitivity, and not the Type I test for the strength of consistency of an association.

c. The importance of having the SIA work performed by competent, professional social scientists, increases in the absence of reliable data on the effects of the project or policy change.

Resource limitations will not always allow for SIAs to be done by experienced social scientists outside the agency. A balance, however, is also required in deciding when the absence of professional social science expertise can be considered an acceptable compromise, and when it needs to be considered speculative and imprudent for both the agency and the impacted community. As a general principle, compromises can be permissible under two circumstances.

***** First, in cases where proposed actions are considered by reasonable persons (specifically those within the agency with demonstrated social science expertise and those in the potentially effected community) to be likely to create only negligible or nonexistent impacts on the human environment. In these situations, a finding of no significant impact (FONSI) would be issued and the SIA-EIA would not be conducted.

***** Secondly, in cases where a significant body of empirical findings is available from the social science literature, which can be applied relatively directly to the proposed action in questions, and is in fact explicitly considered and cited by the person(s) preparing the SIA section of the EIS.

VI. CONCLUSIONS

Social impact assessment is predicated on the notion that decision makers should understand the consequences of their decisions before they act and that the people affected will not only be appraised of the effects, but have the opportunity to design their future. The human environment has an advantage over other parts of the natural environment because it reacts in anticipation of change, can plan for change and can adapt in reasoned ways to changing circumstances by being part of the planning process. In addition, persons in different social settings interpret change in different ways, which in turn affects how they will react. Perhaps because of this complexity, or the political consequences of making explicit the social consequences of projects and programs, social impact assessment has not been well integrated into agency decision making. The guidelines and principles presented herein are designed to assist agencies and other institutions in implementing SIA within the context of the NEPA process. If well-prepared SIA is integrated into the decision-making process, better decisions will result.

VII. ASSESSABLE SOCIAL IMPACT ASSESSMENT LITERATURE

Textbooks and Guides

Branch, Kristi, Douglas A. Hooper, James Thompson and James C. Creighton. 1983. *Guide to Social Impact Assessment*. Boulder, CO: Westview Press, ISBN 0-86531-717-8.

Burdge, Rabel J. 1994. *A Community Guide to Social Impact Assessment*, Social Ecology Press, Box 620863, Middleton, Wisconsin, 210 pages.

Freudenburg, William R. 1986. "Social Impact Assessment." *Annual Review of Sociology* 12:451-478.

Taylor, C. Nicholas, C. Hobson Bryan and Colin C. Goodrich. 1990. *Social Assessment: Theory, Process and Techniques*. Studies in Resource Management No. 7, Center for Resource Management, P.O. Box 56, Lincoln University, New Zealand.

Regulations and Administrative Procedures

Atherton, Carol Coop. 1977. "Legal Requirements for Environmental Impact Reporting." Pp. 9-64 in James McEvoy III and Thomas Dietz, *Handbook for Environmental Planning: The Social Consequences of Environmental Change*. New York: Wiley.

Jordan, William S. III. 1984. "Psychological Harm After PANE: NEPA's Requirements to Consider Psychological Damage." *Harvard Environmental Law Review* 8:55-87.

Llewellyn, Lynn G. and William R. Freudenburg. 1990. "Legal Requirements for Social Impact Assessments: Assessing the Social Science Fallout from Three Mile Island." *Society and Natural Resources* 2(3): 193-208.

Meidinger, Errol E. and William R. Freudenburg. 1983. "The Legal Status of Social Impact

Assessments: Recent Developments." *Environmental Sociology* 34:30-33.

U.S. Council on Environment Quality. 1978 and July 1, 1986 update. *Regulation for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR 1500-1508). Washington, D.C.: Government Printing Office, Washington, D.C. 20402.

U.S.C. Pub. L. 91-90, The National Environmental Policy Act of 1969, as Amended (as Amended by Pu.b. L. 94-52 1975, and Pub.L. 94-83, August 9, 1975.

SIA Methodology

Finsterbusch, Kurt and C. P. Wolf (eds.). 1981. *Methodology of Social Impact Assessment. 2nd Edition*. Stroudsburg, PA: Hutchinson Ross, ISBN 0-87933-401-0.

Finsterbusch, Kurt, Lynn G. Llewellyn, and C.P. Wolf (eds.) 1983. *Social Impact Assessment Methods*. Beverly Hills, CA: Sage, ISBN 0-8039-2142.

Finsterbusch, K., J. Ingersol, and L. Llewellyn (Eds). 1990. *Methods for Social Analysis in Developing Countries*. Boulder: Westview Press.

Leistritz, Larry and Steven H. Murdock. 1981. *The Socioeconomic Impact of Resource Development: Methods of Assessment*. Boulder: Westview Press, ISBN 0-89158-978-3.

Rickson, Roy E., Tor Hundloe, Geoffrey T. McDonald and Rabel J. Burdge, (Eds.). 1990. "Social Impact of Development: Putting Theory and Methods into Practice" *Environmental Impact Assessment Review*, 10: 1 & 2; pages 357, $US 20 (plus postage) from IAIA, P.O. Box 70, Belhaven, NC 27810.

Stoffle, Richard W., and others, 1990, "Calculating the Cultural Significance of American Indian Plants: Paiute and Shoshone Ethnobotany at Yucca Mountain Nevada", *American Anthropologist*, 92(2), pp 416-432.

Research Findings

Elkind-Savatsky, Pamela. 1986. *Differential Social Impacts of Rural Resource Development*. Westview Press, 293 pp.

Finsterbusch, Kurt. 1980. *Understanding Social Impacts: Assessing the Effects of Public Projects.* Beverly Hills, CA: Sage.

Freudenburg, William R. and Robert Gramling. 1992. "Community Impacts of Technological Change: Toward a Longitudinal Perspective." *Social Forces* 70(4), June: 937-55.

Freudenburg, William R. and Robert E. Jones. 1992. "Criminal Behavior and Rapid Community Growth: Examining the Evidence." *Rural Sociology* 56 (4): 619-45.

Gramling, Robert and William R. Freudenburg. 1990. "A Closer Look at `Local Control': Communities, Commodities, and the Collapse of the Coast." *Rural Sociology* 55(4): 541-58.

Greider, Thomas and Lorraine Garkovich. 1994. "Symbolic Landscapes: The Social Construction of

Nature and the Environment," *Rural Sociology* 59 (2): forthcoming.

Gulliford, Andrew. 1989. *Boomtown Blues: Colorado Oil Shale, 1885-1985*. Niwot, CO: University Press of Colorado.

Llewellyn, L.G. 1981. "The Social Cost of Urban Transportation." In I. Altman, J. Wohlwill and P. Everett (eds.), *Transportation and Behavior*, N.Y., Plenum Press, 169-202.

Stoffle, Richard W. and others, 1991, "Risk Perception Mapping: Using Ethnography to Define the Locally Affected Population for a Low-Level Radioactive Waste Storage Facility in Michigan, *American Anthropologist*, 93 (3): 611-635.

Literature Reviews

Bowles, Roy T. 1981. *Social Impact Assessment in Small Communities: An Integrative Review of Selected Literature*. Toronto, Butterworths, ISBN 0-409-81611-6.

Carley, Michael J. 1984. *Social Impact Assessment: A Cross-Disciplinary Guide to the Literature*. Boulder, CO: Westview Press, ISBN 0-86531-529-9.

Leistritz, Larry and Brenda Ekstrom, 1986. *Social Impact Assessment and Management: An Annotated Bibliography*, N.Y. Garland.

Conceptual Guidelines

Burdge, Rabel J. 1994. *A Conceptual Approach to Social Impact Assessment: An Edited Compilation of the writings of Rabel J. Burdge and Colleagues*, Social Ecology Press, Box 620863, Middleton, Wisconsin, 226 pages.

Freudenburg, William R. and Kenneth M. Keating. 1985. "Applying Sociology to Policy: Social Science and the Environmental Impact Statement" *Rural Sociology* 50(4):578-605.

Gramling, R. and W.R. Freudenburg. 1992. "Opportunity-Threat, Development, and Adaptation: Toward a Comprehensive Framework for Social Impact Assessment," *Rural Sociology*, 57, (2): 216-234.

Rickson, Roy E., Rabel J. Burdge and Audrey Armour (Eds.). 1990. "Integrating Impact Assessment into the Planning Process: International Perspectives and Experience," *Impact Assessment Bulletin*, 8: 1 & 2; pages 357, $US 20 (plus postage) from IAIA, P.O. Box 70, Belhaven, NC 27810.

Peer Reviewed Journals

American Anthropologist

Environmental Impact Assessment Review,

Human Organization

Impact Assessment (formerly Impact Assessment Bulletin)

Project Appraisal

Rural Sociology

Society and Natural Resources

Professional Associations:

- **International Association for Impact Assessment (IAIA)**, was organized in 1980 to bring together researchers, government employees, practitioners and users of all types of impact assessment. Write IAIA, P.O. Box 70, Belhaven, NC 27810.

- **The International Association for Public Participation Practitioners (IAP^3)**, was established in 1990 to serve as a focal point for networking about public involvement activity and techniques. Write IAP^3, 17505-QQ NW Sauvie Island Road, Portland, OR 97231.

1. ^{0}Listed alphabetically, the paper was prepared by Burdge, Fricke, Finsterbusch, Freudenburg, Gramling, Holden, Llewellyn, Petterson, Thompson and Williams. Comments were received from Hobson Bryan, Tom Greider, Lambert Wenner, and Richard Stoffle. A previous draft of the paper was given with the title, "Social Impact Assessment: Principles and Standards for U.S. Federal Agencies and U.S. Sponsored Donor Agencies," as a parallel plenary session at the 13th Annual Meeting of the International Association for Impact Assessment, Qian He Hotel, Shanghai, China, June 12-15, 1993 and included in the *Abstracts* (p. 15-16).

2. ^{0}These variables are suggestive and illustrative and are only intended to provide a beginning point for the social assessor. Taylor *et al*, 1990 (as well as the U.S. Forest Service manual) use the four major categories of: population change; life style; attitudes, beliefs and values; and social organization. Burdge, 1994, uses the five categories of: population impacts; community and institutional arrangements; conflicts between local residents and newcomers; individual and family level impacts and community infrastructure needs. Branch, *et al*, 1984, use four categories of social impact assessment variables in their social organization model: direct project inputs, community resources, community social organization; and indicators of individual and community well being.

3. ^{0}During the fall of 1993 the White House Office on Environmental Policy issued a draft Executive Order for agency review entitled "Federal Actions to Improve the Environmental Conditions of Minority and Low Income Communities". The proposed executive order would require agencies to:

- Explore new and innovative ways of including community input
- Identify potential effects and mitigation measures through consultation with the affected communities
- Improve accessibility of meetings and information
- Ameliorate significant and adverse social and economic effects on minority and low income communities
- Assure social and economic impacts on minority and low income communities are analyzed under

the Clean Air Act

The order requires the implementing agency (either the EPA or the Council on Environmental Quality) to prepare specific additional guidance on how to address social an economic impacts within the NEPA process.